Development and preliminary validation of a tool measuring concordance and beliefs about performing pressure-relieving activities for pressure ulcer prevention in spinal cord injury

Abstract:

Objective: To develop and examine the reliability, and validity of a questionnaire measuring concordance for performing pressure-relief for pressure ulcer (PrU) prevention in people with Spinal Cord Injury (SCI).

Methods: Phase I included item development, content and face validity testing. In phase II, the questionnaire was evaluated for preliminary acceptability, reliability and validity among 48 wheelchair users with SCI.

Results: Thirty-seven items were initially explored. Item and factor analysis resulted in a final 26-item questionnaire with four factors reflecting concordance, perceived benefits, perceived negative consequences, and personal practical barriers to performing pressure-relief activities. The internal consistency reliability for four domains were very good (Cronbach's α = .75-.89). Pearson correlation coefficient on a test-retest of the same subjects yielded significant correlations in concordance ($r = .91$, $p = .005$), perceived benefit ($r = .71$, $p < .04$), perceived negative consequences ($r = .98$, $p < .0001$), personal barriers ($r = .93$, $p = .002$). Participants with higher levels of concordance reported a greater amount of pressure-relieving performed. Individuals viewing PrU as a threatening illness were associated with higher scores of concordance and tended to report a greater amount of pressure-relieving performance which provides evidence of criterion related validity.

Conclusion: The new questionnaire demonstrated good preliminary reliability and validity in people with SCI. Further evaluation is necessary to confirm these findings using larger samples with follow-up data for predictive validity. Such a questionnaire could be used by clinicians to identify high risk of patients and to design individualised education programme for PrU prevention.

Keywords: Pressure ulcer; Prevention; Pressure relieving; Concordance; Spinal cord injury

1. BACKGROUND:

A pressure ulcer (PrU) is described as an area of localized damage to the skin as a result of prolonged pressure alone, or pressure in combination with shearing forces [1]. Approximately

20-30% of people with Spinal Cord Injury (SCI) develop PrUs 1 to 5 years after the injury [2, 3 ,4] and up to 80% of people with SCI experience at least one PrU in their life time [5]. Following a SCI, people lose their motor and sensory functions below the level of injury, and generally mobilise in a wheelchair. Consequently, prolonged external pressure is applied to neurologically impaired skin alongside the atrophied gluteal muscles leading to the tissues over the sacrum and ischial tuberosity being the main anatomical sites for developing a PrU [4,6].

PrU represents a significant health, social and economic burden for patients living a SCI. Once a PrU has developed, it can be extremely difficult to achieve full repair. A PrU developing in the acute post-injury phase results in longer hospital stays and delayed rehabilitation, adding to other devastating early burdens of SCI. In the longer term in more severe cases, PrU results in prolonged periods of strict bedrest, reduced quality of life, the need for surgical interventions and even fatal sepsis [6]. Apart from personal consequences, PrU represents a significant cost burden for health and social care systems. The average cost to treat one grade IV PrU is £14,108, with a total annual cost for PrU treatment being £1.4-£2.1 billion in the UK and this accounts for 4% of the annual NHS budget [7]

Given the significant detrimental personal consequence and financial burden, prevention of a PrU is vitally important. The best way to prevent PrU is to avoid prolonged pressure loaded on the bony area. People with SCI who use a wheelchair are advised to do 'pressure-relieving' exercise frequently in order to redistribute the build-up of pressure around the ischial tuberosity and sacral regions, and hence reduce a major risk factor of PrU. The free decision to take up such advice is now generally described by the term 'concordance'.

Traditional pressure-relieving activities are usually undertaken in four different ways: 1) 'Leaning side-side', the individual leans from side to side raising one buttock at a time; 2) 'Leaning forward', the individual leans forwards with chest towards the thighs with ischial tuberosity relieved of pressure while the legs remained in contact with the cushion; 3) Tilting or reclining using power seat functions; 4) Independent 'Push ups', which the individual pushes downwards onto the wheelchair armrests to perform a straight arm lift to take the bottom off the supporting surface. Prior to the mid-1990, it was recommended that individuals with SCI perform full push-ups every 10 mins to 15 mins for at least 5 seconds [8]. Due to the risk of potential injuries at the shoulders, later guidelines recommended

learning forward or laterally, or using power seat functions such as tilt and recline for two consecutive minutes per hour or at least 15 to 30 seconds every 15 to 30 minutes in order to achieve adequate pressure-relieving[1,8]. Pressure-relieving activities alongside skin inspection was taught to people with SCI during rehabilitation stage. However, previous studies have shown that concordance to pressure-relieving movements following recommended frequency and magnitude are very low in SCI, population, particularly after being discharged from hospital [9, 10, 11, 12, and 13].

For example, Stockton and colleagues [12] conducted a survey of 136 wheelchair users, where 109 participants (80%) people with SCI reported being physically capable of completing pressure-relieving movement, yet 12.8% of them do not perform such movement at all, 43.1% moved less than once per hour. Only 44.1% actually completed recommended pressure-relieving activities every hour or more. Many of those who failed to perform adequate pressure-relieving had experienced a PrU and even experienced recurrent PrU at an early stage after the discharge, indicating a lack of adherence rather than ability [12]. Poor concordance to 'pressure relieving' were also reported in other studies [11, 13, 14, 15]. Stinson and colleagues conducted an observational study to investigate pressure relieving behaviours of SCI individuals during computer use. They measured frequency and type of repositioning movements performed throughout one-hour sitting period on fourteen participants with SCI. They reported that three out of fourteen participants performed no movements during the one-hour period. None of participants adhered to national recommendations of performing pressure relieving movements every 15 minutes [15]. Where participants performed at least four pressure-relieving movements during an one-hour period, the majority of movements performed yielded less than 25% reduction in interface pressures when compared to normal sitting. In order to promote concordance with recommended pressure-relieving activities intended to prevent PrU, it is important to identify those high-risk individuals and understand differences between individual responses.

The Perceptions and Practicalities Approach [16,17,18] states that to understand why patients do not follow recommendations of healthcare professionals it is important to consider both practical barriers (e.g. time constraints, physical limitations) and perceptual barriers (e.g. beliefs about the negative consequences of taking medication) The model posits that people will be least likely to follow the advice of a healthcare provider when they perceive a low

personal need (e.g. if they do not think the actions will improve their symptoms) in the context of high anticipated negative consequences (e.g. stigma, side effects, long-term dependency). The Perceptions and Practicalities Approach has been widely applied to understanding adherence to prescribed medication use [16,17,18]. This approach has not been applied previously to understanding concordance with pressure relief exercises in SCI, however we know that perceptual factors can be used to explain other self-care activities in SCI. For instance, King and colleagues carried out a qualitative study to explore the beliefs in performing preventive skin care in people with SCI by telephone interviewing ten tetraplegic and eleven paraplegic participants [19]. They found that although most participants believed they were susceptible to PrU and preventive skincare was important, paradoxical statements about beliefs and preventive behaviours were commonly reported by participants. Moreover, Dai and colleagues examined factors related to adherence to skincare behaviours by interviewing 20 male paraplegic participants and asking them to complete a list of multiple-choice questions [21]. They found that the perceived severity of PrU and efficacy of skincare together with participants' beliefs about the benefits of skincare were positively related to compliance. These two studies used either open-ended questions or interviews to explore participants' beliefs about skincare and their behaviour in a very small sample. Further to their qualitative study, King and colleagues developed a 114-item scale to measure skin care belief in SCI using mixed methods [22]. The 114 items cover general skin care elements, but does not measure concordance to pressure-relieving activities and the feasibility and practicality for participants to complete such long questionnaire is problematic. This is particularly problematic for participants who are tetraplegic or when there is limited time available for clinical assessment. A shorter questionnaire would be more acceptable for this population and offers potential in increasing response rate [23]. It would be especially useful when the outcomes are measured in large population-based studies, or when repeated measures are taken as assessment of effectiveness of education strategies.

The aim of this study was to develop a new tool to measure concordance and attitude to performing pressure-relieving activities for PrU prevention in SCI, which is user-friendly, simple to complete and suitable for clinical assessment. Secondly, the pilot study was designed to primarily assess the acceptability, reliability and validity of the tool.

2. METHOD

2.1 Ethics approval

Ethical approval for conducting this study was obtained by [detail removed for anonymous review]. All participants gave informed consent.

2.2 Participants

Individuals who are wheelchair users with SCI regardless of level and duration of injury were invited to complete the questionnaire from two SCI charities (Spinal Injury Association and ASPIRE). The questionnaire was available for both online and printed version. It was posted for on-line completion on the spinal injury charity websites and a printed version was given to participants at a charity promotion event by the first author. These questionnaires were completed and returned to the first author (LQL) at the event..

2.3 Study design

The first phase of the study involved developing the questionnaire and determining its content and face validity. The questionnaire was generated following a comprehensive literature review and exploration by LQL and SC (health psychology researcher) of potential practical barriers to performing pressure relief, beliefs about benefits of pressure relief, and beliefs about adverse consequences of pressure relief. From this a pool of 37 possible items was generated. These were then circulated to SCI physicians (AG), a SCI person (RG), SCI tissue viability expert (RD), SCI healthcare scientist (SK) and a nursing academic (HA) who reviewed and suggested the removal of eight redundant or poorly conceptualised items and also confirmed the measure's content and face validity. The first part of the questionnaire focused on demographic information, comprising sex, age, and educational level, history of PrU, duration of injury and amount of pressure relieving performed during previous week. The second part comprised 29 statements about concordance and attitude towards performing 'pressure relief' activities (see supplementary material for full list of items). Participants were asked to use a Likert scale to respond to these items: of 1 (strongly disagree), 2 (disagree), 3 (neither disagree nor agree), 4 (agree) or 5 (strongly agree). Part 3 is made up of the 8-items of the modified Brief Illness Perception Questionnaire (mBIPQ) [24] to measure perceptions of PrU. The mBIPQ, score was calculated as sum of all 8 items to give a score ranging from 0-80. This was included to allow concurrent criterion validity of the new scale to be established.

In phase 2, a Principle Component Analysis (PCA) was used to create the final concordance questionnaire and to investigate its underlying factor structure. Test-retest reliability was

assessed in ten random participants who completed the questionnaires at two week intervals. Criterion related validity was assessed by calculating correlations between concordance and actual performance, and also concordance and the perspective of having PrU as measured by the mBIPQ.

3. DATA ANALYSIS

Data were entered and analysed using the Statistical Package for Social Sciences (version 21.0) (SPSS Inc., Armonk, NY)

3.1 Acceptability

Acceptability is about ease of use and was assessed by the percentage of respondents who completed the questionnaire without omitting any items.

3.2 Principle Component Analysis (PCA):

PCA was performed for item retention and structure determination. Prior to PCA, Keiser-Meyer-Olkin Measure of sampling adequacy was examined for suitability for running the PCA. The number of factors was determined by means of eigenvalues (greater than 1) and scree tests. Items were retained if the Kaiser—Meyer—Olkin measure of sampling adequacy was greater than 0.5 and the communality of an item was greater than 0.4 [25]. Item-total correlations were calculated for all items. The items with an item-total correlation below 0.2 were removed [25].

3.3 Reliability

Internal consistency estimates the extent to which all of the items within a scale are assessing a single construct and is tested using Cronbach's alpha. Cronbach's alpha ranges from 0 to 1, where scores of 0 are indicative of no consistency (the items are unrelated to each other) and scores of 1 indicate that the items are practically identical, with α=0.70 or greater considered as sufficiently reliable [26].

Test-retest reliability refers to the tendency towards consistency found in repeated measurements of the same phenomenon, or the likelihood that a given measure yields the same description of a given phenomenon if that measurement is repeated. Test-retest reliability was assessed by giving the questionnaire to random participants (n=10) with a two

week interval. Pearson correlations (r) were used to evaluate test-retest reliabilities between initial and repeated test scores for each scale.

3.4 Validity

Concurrent criterion related validity

Criterion-related validity can be assessed by determining the relationship of scores on a test to a specific criterion [17, 27]. In this study, Pearson correlations (r) were used to evaluate the relationship between amount of pressure-relieving activities performed and the score of each factor. The correlations between the scores of perception of having a PrU and the scores of each factor and amount of pressure relieving performed were also examined. Significant level was <0.05.

Pearson correlations (r) were used to evaluate the correlations between amount of pressure-relieving activities performed and score of each factor. The correlations between the score of perception of having a PrU and score of each factor and amount of pressure relieving performed were also examined. Significance level was <0.05.

4. RESULTS

A total of 48 participants completed the questionnaires of which 25 participants were male and 23 were female. 43 completed the survey on line and the remainder completed the paper version. The duration of injury ranged from 1 year to 59 years, and level of SCI ranging from C2 to L1. No subgroup analyses was carried out partly because the sample was too small to allow this and because the main aim of this exercise was to develop and test the measure.

4.1 Acceptability

The questionnaire was well accepted by participants, as indicated by the very low proportion of missing data. Forty five out of 48 participants (94%) completed all items without omitting any items. 3/48 participants (6%) missed one item; none of the participants omitted two or more items.

4.2 Item and factor analysis:

Thirty-seven concordance and attitude items alongside eight items of PrU perception were initially reviewed independently by the team who gave feedback. All items were examined for redundancy, similarity, and plausibility. This process removed eight concordance and attitude items.

Principal component analysis was performed on the remaining 29 concordance and attitude items. The Kaiser—Meyer—Olkin measure of sampling adequacy yielded a value of 0.70 overall ($p<0.0001$). Three items with an item-total correlation below 0.2 were removed. A scree plot indicated the extraction of four factors which together explained 58.7% of the variance the four factors. Table 1 shows loading value of four factors. For ease of interpretation loadings < 0 3 are omitted from Table 1.

Table 1 Concordance questionnaire factor analysis with item loading

	Factor 1	Factor 2	Factor 3	Factor 4
1. I do my pressure relief exercises for a shorter time	0.843			
2. I do my pressure relief exercises less frequently than instructed	0.723			
3. I accidentally miss my pressure relief exercise	0.801			
4. I decide not to do my pressure relief exercises	0.835			
5. I do a different sort of exercise from the exercise I have been instructed to do	0.648			
6. There are times when I stop doing my pressure relief exercises	0.686			
7. Doing wheelchair 'pressure relief' regularly prevents pressure sores		0.724		
8. Doing wheelchair 'pressure relief' regularly helps avoid prolonged periods of bed rest		0.813		
9. Doing wheelchair 'pressure relief' helps me stay out of hospital		0.694		
10. I am taking care of myself when I do wheelchair 'pressure relief' regularly		0.739		
11. I would prefer to do 'pressure relief' regularly rather than risk having a pressure sore		0.672		
12. I feel more in control of my life if I do my 'pressure relief' regularly		0.686		
13. Pressure relief is the best way to avoid pressure sores		0.642		
14. Doing 'pressure relief' exercises is uncomfortable			0.781	
15. I sometimes worry that doing 'pressure relief' activities regularly will cause injuries			0.767	
16. Wheelchair 'pressure relief' gets in the way of other things			0.673	
17. Other lifestyle considerations such as diet and muscle exercise are more important than pressure relief activities			0.682	
18. It is a hassle to do wheelchair 'pressure relief' all day			0.692	
19. It is embarrassing to do wheelchair 'pressure relief' in public			0.683	
20. I find it tiring to do my pressure relief exercises				0.695
21. It is difficult to keep doing 'pressure relief' regularly when my routine changes				0.758
22. When I'm busy it is more difficult to do pressure relief activities regularly				0.716
23. I find it difficult to remember to do my pressure relief				0.704
24. I find it difficult to find somewhere private to do pressure relief.				0.653
25. I forget to do my pressure relief exercise				0.681
26. I need people to support me to do pressure reliving activities				0.642

4.2.1 Interpretation of factors

Factor I: The first factor compromised six high-loading items which measure concordance to 'pressure-relieving' movement. The score of concordance factor was calculated as: Sum of scores of 6 items and then divide by 6 to give a scale score (range 1-5). Higher scores indicate higher levels of concordance.

Factor 2: The second factor compromised seven high-loading items which relate to perceived benefit of performing 'pressure relief'. The score of this factor was calculated as: Sum of scores of 7 items and then divide by 7 to give a scale score (range 1-5). Higher scores indicate higher level of belief of benefit to perform pressure reliving.

Factor 3: The third factor comprised six high-loading items which measure perceived negative consequences of pressure-relieving including the danger of injury, lack of comfort, embarrassment and ineffectiveness. The score of this factor was calculated as: Sum of scores of six items and then divide by 6 to give a scale score (range 1-5). Higher score indicates stronger higher level of perceived unfavourableness of pressure-relieving.

Factor 4: The fourth factor compromised seven high-loading items which refer to practical barriers, such as lack of support, difficult to perform, remember or busy schedules etc. The score of practical barrier factor was calculated as: Sum of scores and then divide by 7 to give a scale score (range 1-5). Higher score indicates more practical barriers to perform pressure-relieving.

4.3 Internal consistency

In order to assess how closely related the items in each factor were, Cronbach's alpha coefficients for the questionnaire obtained are shown in Table 2. Alphas of above 0.7 are considered to show good internal consistency [26].

Items/Domains	Cronbach alpha	Number of items
Concordance	0.76	6
Perceived Benefits	0.89	7

Negative consequences	0.87	6
Practical Barriers	0.75	7

Table 2 Internal consistency (Cronbach alpha) of the attitude the four domains

4.4 Test-retest reliability

Test-retest correlations of all scores are shown in Table 3.

Items/Domains	Pearson's r^2 coefficient	P value
Concordance	0.91	0.005
Perceived Benefits	0.71	0.04
Negative consequences	0.98	< 0.0001
Practical barriers	0.93	0.002

Table 3 Pearson's r^2 coefficient value for test-retest reliability within each domain

4.5 Criterion-related Validity

4.5.1 *Performance of pressure-relieving and concordance and attitude to pressure-relieving*

As expected, the concordance score was positively correlated with the amount of pressure-relieving actually performed (r^2=0.83, p<0.001). Participants with higher levels of concordance reported a greater amount of pressure-relieving exercise performed.

There were positive correlations between perceived benefit and amount of pressure-relieving performed. Higher score of perceived benefit was significantly correlated with greater amount of reported pressure-relieving practice (r^2=0.62, p<0.001).

Participants who reported fewer personal practical barriers (r^2 = -0.58; p<0.0001) reported that they performed higher amount of pressure-relieving.

4.5.2 Perception of having a PrU and concordance and attitude

Individuals viewing PrU as a threatening illness were significantly associated with higher scores of concordance. (r^2=0.41; p=0.01), Individuals viewing PrU as a threatening illness tended to report that they performed more pressure-relieving . (r^2=0.49; p=0.003).

No significant associations were found between scores of perception of having a PrU and perceived benefits, perceived negative consequences and practical barriers.

5. DISCUSSION

In this pilot study, we developed a 26-item scale and assessed its reliability and validity. This scale measures concordance attitude towards performing 'pressure-relieving' activities for PrU prevention in individuals with SCI. The core themes of the questionnaire we developed were: concordance to 'pressure-relieving', beliefs about the benefit of the pressure-relieving and perceived negative consequences about pressure-relieving and personal practical barriers to performing pressure relieving. The perceived benefit construct represents beliefs about the benefit of pressure-relieving in PrU prevention. The perceived negative consequences construct describes participants' uncertainty of the value and effectiveness of pressure relieving activities, as well as concern about potential adverse injury. The practical barriers construct comprises environmental and capacity issues which may make pressure relieving activities more difficult including lack of support, difficulty of performance, forgetting and busy schedules. All domains performed well and the measure shows promise as an effective tool for assessing how individuals are likely to engage with pressure-relieving movement. Each domain demonstrated acceptable internal consistency as well as test-retest reliability.

The validity of a questionnaire refers to the extent to which the data relate to commonly accepted measures of a particular concept. When "gold standard" tools for measuring the same construct are not available, validity is judged based on relationships between the questionnaire and other relevant constructs. Criterion related validity is a process setting up hypotheses about relationships between the constructs. It is assessed for determining the

relationship of scores on a test to a specific criterion [17, 27]. It measures how well a new test compares to an well-established test, and also refers to the practice of concurrently testing two groups at the same time. In this study, relationships between concordance and PrU perception and participants' performance of pressure-relieving was examined. For example, reasons for not performing pressure-relieving can emerge from the perspective of potential benefit or uncertainty about the value and adverse effect of pressure relief activities alongside some personal barriers. As expected, higher levels of concordance and belief of benefit of pressure-relieving exercise are associated with greater performance of pressure-relieving exercises. Stronger perceived negative consequences regarding 'pressure relief' activities and higher score of practical barriers on performing pressure-relieving are associated with lower levels of concordance. Moreover, individuals viewing pressure ulcer as a threatening illness appear to have a higher level of concordance to pressure-relieving exercises. Participants who had higher level of belief in the benefit of performing pressure-relieving and less concern about the negative consequences of pressure-relieving are correlated to higher level of concordance. Such correlations represent one example of how the new tool can highlight particular issues for individuals and potential avenues for interventions to support people to perform pressure relieving exercises.

Positive health behaviours have been shown to prevent or delay onset of secondary impairment including PrU in SCI. [13, 15]. For example, Bloemen-Vrencken surveyed 454 participants who had SCI living in the community. They found that participants who had higher score of health behaviours reported a reduced number of PrU. Therefore, promoting pressure-relieving activities could potentially prevent PrU development. To date there is no tool to measure an individual's concordance and beliefs about pressure-relieving. Assessing concordance and beliefs about pressure-relieving activities could be useful to help identify individuals at high risk of developing PrU along with providing guidance for the development of tailored educational interventions for PrU prevention.

In comparison to the 114-item of skin care questionnaire developed by King and colleagues [22], our new 26-item scale is much shorter and easy to complete. While previous 114-item skin care questionnaire measures people's belief in general skin care in SCI, it does not measure concordance or account for attitude towards performing pressure relieving. In addition, completing a length of 114-item questionnaire can be extremely challenging for

individuals with a SCI to complete either in clinic or at home. Shorter questionnaires have been associated with significantly increased response rates [23]. Our questionnaire was designed with simple answers for each question and takes 10-15mins to complete, which could be helpful for participants with SCI as it may help raise their insight into their own approach to pressure relieving activity and make the barriers more visible to them to deal with them.

The new tool appears to be a reasonable first step in generating a validated outcome measure to assess pressure-relieving activities in SCI. However, the current study has several limitations. One limitation is that the small sample size using a convenience sampling technique reported in this initial pilot study. With the small sample size, firm conclusions cannot be drawn regarding whether the failure to detect some associations was related to unstable estimates or that the relationships did not exist. Subgroup analysis based on level or duration of injury was not performed in this pilot study due to small sample size, and also mainly because the main aim of this pilot study was to develop and test the measure. In addition, although the questionnaires were mainly administered and completed online, we did receive some hard copies of questionnaires at one of the charity's promotion event in order to increase our recruitment. As stated, five paper completed responses were included in our pilot analysis. The extent of generalisability of our findings is uncertain. Thus, further development is warranted by replication in larger samples to provide more stable estimates of the associations between the new tool and other constructs. Nevertheless, our sample of 48 meets the recommendation of at least 30 for a pilot study in survey research [28-30]. Our sample of 48 participants meets In addition, our sample included a mixture of male and female participants, different level of injury ranging from 2nd cervical to 1st Lumbar level and a range of duration of injury (1-59 years), which has potential to be representative of the population for future large sample size survey.

In addition, the PCA analysis was performed in this pilot study for structure determination, which was generally applied on larger sample sizes depending on the number of variables or factors [31][32]. In general, a sample size of 60 is adequate for a PCA if factors are defined by four to ten measured variables with structure coefficients > .60 [32]. Due to recruitment difficulties in this population during our study period, the sample size fell below conventional recommendations for PCA. However, the analysis generated four distinctive factors that

measures concordance and beliefs. Each factor has been demonstrated very good internal reliabilities. The high factor loadings were achieved between 0.642-0,848 in this study. Our items loaded strongly onto our final factors which can mean that a smaller than conventional sample size is required to obtain a robust solution,. Further research with larger samples would be needed to confirm these findings.

Another limitation is that the criterion-related validity was evaluated against perception of having a PrU and pressure relieving reported by the participants due to the lack of availability of validated measures of concordance and attitude of 'pressure-relieving' movement. The evaluation of the validity of the questionnaire was also limited by the absence of data testing the predictive validity of the measure. This can be evaluated by examining inter-relations between our scales and other variables separated over a period of time in the future. Despite these limitations the data described in this study provide preliminary evidence for the initial reliability and criterion-related validity of the new scale and support its use as a potential research tool within the context of studies investigating concordance and beliefs about pressure-relieving activities.

Practical applications

Research

The questionnaire offers a valid and reliable method for investigating the impact of interventions on levels of concordance to pressure-relieving activities. For example, it may be particularly useful for evaluating new educational strategies for judging the acceptability and efficacy of existing practice.

Clinical practice

Previous research has indicated low concordance to pressure-relieving exercise after the discharge to communities. Our questionnaire takes account of different views among individuals. Such a tool could aid healthcare professionals in planning for and structuring consultations and allowing them to identify high risk of participants and target the content of the consultation accordingly. At this stage, further research would allow us to determine minimally significant differences in scores indicating clinically significant changes.

6. CONCLUSION

Based on our initial evaluation, this questionnaire demonstrated good reliability and validity. This initial evaluation confirmed the value of the new tool as a novel method for assessing concordance attitude that SCI individuals commonly hold about their pressure-relieving movements. As such, this questionnaire could be a promising assessment tool useful for evaluating educational interventions, and ultimately preventing or delaying PrU development in this population.

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